

COST *and* MANAGEMENT

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EDITORIAL

Get On With It

By the time these lines appear the composition of the new Canadian Government will be known, and, as we have so often been advised to do, we can then "get on with the war".

Actually, which party wins the election is not a matter of much concern, because it is impossible to contemplate anything but a most vigorous prosecution of the war.

It is, however, just as well to face the facts as we see them, and so it would seem to us that a whole lot of energy, space and money is being spent in giving publicity to accusations, counter accusations and denials by the various candidates.

Politics in abundance is being played and there is ample evidence in the somewhat apathetic attitude of the electors that the Canadian people are more than a little sick of the tricks which are being used in an effort to catch votes.

Maybe there is some justification for the statement that there was no necessity for this election, maybe there is also some justification for the accusation that Canada was not prepared for war and all the other accusations that are being thrown around, but, after all, are these things really vital?

The vital thing is that we are at war, that thousands of Canadian young men are offering their services for war, that many will die and many others will be maimed for life as a result of this war, and it is essential that we, who stay at home, should not "let them down".

One of the essential things is that the Canadian people as a whole were not prepared mentally for war, and in fact many of them are not yet prepared.

Granted that it is the most peculiar war in history, granted that the action on land, to date, has not been spectacular, the people as a whole must be made war conscious, and by this we do not mean militaristic in the sense that we actually want war, but we must be made to realize as a people that actually civilization is in danger and that if we do not win this war, then Canadian civilization is just as much in peril as that of Britain and France.

Our duty, as a country, is to supply the Allies with what they consider they most need, whether it be foodstuffs, supplies, munitions, planes or men, and we should forget our petty bickerings and "get on with the war". How else can we educate the Canadian people to the dangers that confront them?

ACROSS THE SECRETARY'S DESK

State Insurance.

Recently there came from a candidate for Dominion Parliament, during a speech, a statement to the effect that Mr. Mackenzie King intended, if returned, to bring forward a system of Unemployment, Health and Old Age Pension Insurance, and to say the least, such a statement is interesting. However, so little publicity has been given to this statement that one hesitates to attach too much importance to it. If it is sincere, then one wonders how the opposition of Premiers Hepburn and Aberhart has been overcome, if at all, and, if not, how the Government proposes to get around this opposition.

It does seem a silly sort of position for a Dominion Government to be in. Here we are, in the larger sense, actually at war for security and yet, we are prevented, by two men, from giving our Canadian workers a measure of Social Security.

If it were not so tragic it would be really funny.

Across the Secretary's Desk

February has been rather a hectic month, but it has brought many compensations. First of all, the Student Sections are going ahead very nicely. Windsor, London, Hamilton, Niagara Peninsula, and now Toronto, are all being organized, and this fact should not only result in a fairly large increase in membership, but marks a distinct step forward in the work of our Society.

It has long been felt that regular meetings of the chapters are somewhat "over the heads" of ordinary Student members, and these Student Sections with the Students having their own meetings, with the topics being discussed being more in keeping with the standing of the members should result in vastly increased knowledge for those attending and a definite step toward the systematic training of our younger members.

We bring this to the attention of our senior members because undoubtedly most of us have on our staff some young man who would fit in very nicely into these Student Sections.

On February 20, the writer had the privilege of attending a joint meeting of the Niagara and Hamilton Chapters at St. Catharines and, frankly, we vote this as probably the best meeting of its kind we have ever attended.

When we say that Charles ("Doc") Reitell of New York was the speaker, perhaps that is sufficient explanation but, in any event, those who missed it, certainly missed a very fine meeting. "Doc" Reitell spoke on "The Inter Play of Costs-Prices-Volume and Profit", and it is hoped at some later date to publish the text of this talk in "Cost and Management". The speaker had the eighty-odd members and guests on the edge of their seats for about two hours, and it was the shortest two hours we can remember. "Doc" Reitell, a brilliant speaker, with a most delightful personality, not only gave his hearers much information, but he did more, he gave them plenty to think about.

COST AND MANAGEMENT

Another meeting that we had the pleasure of attending was the regular Toronto Chapter meeting on February 27, when our Dominion President, Aleck Howey, spoke on "Budgeting". The attendance was very good, there was a good discussion, and the members generally seemed to get plenty from Mr. Howey's talk, but the thing that struck this writer was that there was much more "pep" than has been displayed at a Toronto meeting for a long time. This chapter has had one of its best seasons and the attendances have been very good.

Our year is drawing rapidly to a close, but we can report a definite progress and already a record increase in membership is assured.

We have profited from past mistakes and although we are a long way from being perfect, much has been and is being accomplished. Despite setbacks, we have gone steadily forward, and from what one can see by attending chapter and Student Section meetings, we should go a long way during the next twelve months, even in the next two months. R. D.

New Members

Montreal Chapter.

Homer S. Marion, C.G.A., M.C.I., Reading Anthracite Canadian Co., Ltd., Montreal.

Colin Howitt, Hinde & Dauche Paper Co. of Canada, Ltd., Montreal.

Georges L. Charron, Canadian Credit Men's Trust Association Ltd., Montreal.

Hamilton Chapter.

J. N. Buckett, Steel Company of Canada Ltd.

D. Wesley Coombe, Dominion Glass Co., Ltd.

M. R. Gillan, Fred'k C. Robins & Co.

J. R. Scarlett, Canada Steamship Lines Ltd.

H. B. Wodehouse, Canadian Westinghouse Co. Ltd.

F. W. Batt, Hamilton Motor Products Ltd.

M. Sansone, International Harvester Co. Ltd.

Niagara Peninsula Chapter.

D. W. Webber, F. H. Leslie Ltd., Niagara Falls, Ont.

London Chapter.

E. Clayton Smith, Holeproof Hosiery of Canada Ltd.

J. Charles Monteith, John Labatt Ltd.

P. C. Goodwin, John Labatt Ltd.

Wilfred Chas. Pettitt, John Labatt Ltd.

BACK NUMBERS WANTED

The following back numbers of "Cost and Management" are urgently required. Members having any of these copies to spare are asked to forward same to the Secretary as soon as possible: December, 1937; January, March, April and October, 1938; January, February, April, June-July, November, December, 1939; January, 1940.

Chapter Notes

Montreal Chapter.

There is a certain timbre, an ear-appealing-sound-flavour, a blending of conversational harmonics with the fundamental sound-tints, that accompanies a dinner well-served in surroundings delightful. Which means that the lads of Montreal Chapter have again enjoyed the hospitality of the Engineers' Club. These Dinner Meetings have become an institution in Montreal Chapter; they lend an atmosphere of camaraderie such as has not been previously noted at the ordinary regular meetings. Members, after enjoying a pleasant get-together in the lounge, wend their way unto the various tables in the dining-room and, in never the same group from meeting to meeting, swap stories, solve business problems and talk over those matters which are of interest to cost accountants and industrial engineers—all these from fruit cocktail to soup; entree to dessert; fufu, pipe or cigar to coffee. Such is the first course of this season's Montreal Chapter meetings.

On such an evening, Friday, February 23rd, we gathered together to hear Mr. J. R. Hendry, of McDonald, Currie & Co., give us his impression of "Some of the Special Features Involved in Chain Store Accounting". In the absence of our hard-working Chairman (Friend Walton must take a trip out of town now and then), and in the absence of our genial Vice-Chairman, the Dean and Daddy of all cost accountants, Lorenzo Belanger, didst preside. After a fitting introduction by L. N. Buzzell, a past-chairman and confrere of Mr. Hendry, our guest speaker started from scratch and gave a detailed and well-rounded talk on his subject. We do not wish to go into details in our Chapter Notes because this is one of the papers which should be secured for reproduction in Cost and Management. Mention must be made, however, of the stress placed by Mr. Hendry on controlling inventories before the goods are purchased and the fact that each chain must be treated individually, there being no accounting system which would or could satisfy the demands of all chain organizations. Mr. Hendry brought to the meeting the experience gained over many years in dealing with chain store problems and, hence, was able to give the meeting many sidelights on chain store accounting procedure which mere theoretical knowledge would fail to notice.

An interesting tit-bit of the evening was the "Enterrement de vie d'étudiant" of J. Oscar Houde, who departed this student life February 23rd, 1940, and who was duly "Waked" at the Engineers' Club by "The Department". For those who are not "in the know", Mr. Houde is now an accountant who has become a Civil Engineer—but yet remains an accountant. This may be explained by the simple fact that along with Percy Wright, Donald Peddie and a few more of the boys, Mr. Houde is a member of the accounting staff of The Shawinigan Water & Power Company—Plant and Costs Division. Knowing which, all should now be clear. We might add that it is pleasurable indeed for Montreal Chapter to have celebrated the burial of such an honoured student as Mr. Houde. The menu, which was that suggested in our opening remarks, follows. Engineers will be engineers even unto where the dainty art of dining is concerned.

MENU

Year	Eating Permit No.	Asset	Control	Item	Group	Unit Quantity
1926	1	0000	Cocktails	Aux Choix	255	C.F.S.
1929	2	888	Soup	Tomato Juice or	251	K.W.H.
				Pea Soup	216	Decibels.
1931	3	7777	Entrée	Haddock Saute or	120	Quintals
				Roast Lamb	112	Cwt.
1932	4	9999	Vegetable	Peas	403	Lb.
				Boiled Potatoes	167	Bu.
1940	5	1111	Dessert	Ice Cream or	481	Cu. Yds.
				Baked Apple	313	H.P.
				Cheese and Crackers	305	Sq. Yds.
1940	6	2222	Beverages	Tea	280	B.T.U.
				Coffee	270	Bbls.
				Milk	256	Hh'ds.

We are looking forward to seeing the name of J. Oscar Houde, Civil Engineer, Industrial Engineer, Cost Accountant (and all around good scout) on the membership roster of the Canadian Society of Cost Accountants and Industrial Engineers. What more need be said?

Innovation dans le Chapitre de Montréal.

Nous apprenons la Soirée Française donnée hier soir, vendredi, le 9 révier, au Cercle Universitaire sous les auspices conjoints du chapitre de Montréal de la General

Accountants Association et du chapitre de Montréal de la Canadian Society of Cost Accountants and Industrial Engineers. Plus de cent personnes s'étaient réunies dans la grande salle à manger—attendons encore un peu pour la cloche du diner, je devine ce que vous pensez.

You were right the very first time; this is your hard-working scribe trying to do his very best to remember that which was thrust into his skull by an English-speaking teacher of the French language many years ago. Laissez-moi tranquille! Il ne s'ensuit pas qu'il est sans amis—revenons à nos moutons. Tel qui rit vendredi, dimanche pleurera. Ecoutez ceci.

CHAPTER NOTES

DE MENU

Actif:

Liquide—Crème de Tomates Portugaise
Immobilise—Poulet Rôti au Jus
Intangible—Pommes Rissolées, Petits Pois au Beurre

Passif:

Capital—Glace Napolitaine
Surplus—Mignardises

Certificat des Vérificateurs,
Café à la Crème.

Oui, plus de cent personnes s'étaient réunies dans la salle à manger du Cercle Universitaire pour assister à la première ouverture de la Soirée Française donnée par les comptables de Montréal; l'orateur était M. Esdras Minville, Directeur de l'Ecole des Hautes Etudes Commerciales de Montréal, qui est une autorité reconnu dans le monde économique. M. Minville a exposé quelques-uns des problèmes et a indiqué certains moyens de les résoudre. Sa causerie était intitulée "En dépit de la guerre" et il aurait pu ajouter, ainsi que l'on va le constater, "aurun de nos problèmes actuels ne sera résolu". L'un des problèmes que la crise a révélé chez nous, c'est le problème social et c'est aussi le plus pressant. Le problème social dépasse de beaucoup les limites du problème ouvrier. Il doit s'étendre à toutes les classes sociales. Le problème social ainsi posé comporte trois données, dit M. Minville, la donnée urbaine, c'est-à-dire le problème social des villes, celui qui coute le plus cher; la donnée rurale, dont peu de monde ne s'occupe, mais qui est plus ancienne et plus grave que l'autre; enfin, la donnée familiale qui aggrave les deux autres. La guerre ne résoudra aucun de ces problèmes. Pensez-vous qu'elles apporteront un remède aux problèmes que je viens mentionner?

Non, il faudrait réadapter notre économie politique; renouveler notre politique de colonisation, celle de nos exploitations forestières; réadapter aussi notre enseignement à tous les niveaux; créer un centre d'études et de recherches économiques; continuer l'inventaire de nos r ressources naturelles —Quant à vous, hommes d'affaires, vous avez un rôle à jouer dans la solution de ces problèmes et vous devez vous y intéresser. Plus le milieu dans lequel vous travaillerez sera bon, meilleures seront vos affaires, conclut M. Minville.

Le conférencier a été présenté par M. L. P. Lortie et remercié par M. Lorenzo Bélanger. Le dîner était présidé par M. Marcel B. Morency, président du chapitre de Montréal de la General Accountants Association. A la table d'honneur il y avait: M. Hector Bertrand, Secrétaire-Trésorier de l'association; M. Frank D. Clark, Vice-Président; M. A. Spier Kieller, Président de la General Accountants Association; M. Lorenzo Bélanger; le conférencier M. Esdras Minville; M. R. R. Thompson, professeur de l'Université McGill; M. Hector Mackay, K.C.; M. H. Walton Blunt, Président du chapitre de Montréal de la Canadian Society of Cost Accountants and Industrial Engineers; M. F. Vezina et M. L. Favreau, professeurs de l'Ecole des Hautes Etudes Commerciales; M. L. P. Lortie et M. R. W. Louthood.

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CHAPTER NOTES

As a "beau geste" towards our French members, many of the English members attended this splendid dinner meeting. Over and over again was expressed the appreciation for an unusually enjoyable evening. Many of us are looking forward to another visit with our "confrères". Many of us would again like to hear those songs about the mouse and the cat so admirably rendered by Melle Murielle Millard. Many of us went homewards with a fuller understanding of the meaning of the words "bonne entente".

Toronto Chapter.

On February 27 sixty-five members and guests sat down to dinner at the Canadian Military Institute and about thirty more attended the meeting which followed. The occasion was the regular monthly meeting of the Toronto Chapter and it was a very enjoyable one. Dominion President Aleck G. Howey was the speaker, and his talk, "Constructing Budgetary Controls That Control", was very much enjoyed. Following the talk and the discussion period, Vice-Chairman Hal. Hetherington "pulled off" his special prize drawing in which various members and guests won prizes. Mr. Howey drew his own number but was not awarded a prize. Then a real discussion ensued on a question submitted by a member, "If, under a standard cost system, it is found that the actual burden rate varies materially from the standard rate, should inventories of work in process and finished goods be valued so as to reflect the actual burden therein?" S. F. Saunders, C.A., and R. H. Metcalfe took a leading part in the discussion which followed.

It was a most enjoyable meeting and at the close a number of students attended to organize a Student Section of the chapter and a further meeting will be called on March 12.

Hamilton Chapter.

About thirty members of the Hamilton Chapter journeyed by bus and other conveyances to St. Catharines on February 20 for a joint meeting with the Niagara Peninsula Chapter, and it was a really fine meeting, probably the best of the season if one excepts the joint meeting at Hamilton in December last. Moreover the boys had a most enjoyable time, particularly on the return journey.

The meeting on March 5th was held at the Fischer Hotel, and about forty members and guests sat down to a very fine dinner. Mr. R. J. H. Ryall of Toronto was the scheduled speaker, but unfortunately was too ill to appear, and our Dominion President very kindly substituted. His talk on "Constructing Budgetary Controls That Control" was very well received and the discussion period which followed was really excellent. Mr. Howey received a very hearty vote of thanks at the close.

On March 19 or 20 the members will conduct an "Information Please" night, with questions sent in by members (and paid for) being answered by a board of experts. It promises to be an outstanding night.

Niagara Peninsula Chapter.

Reinforced by about thirty members of the Hamilton Chapter, whose presence was much appreciated, the chapter held its best meeting ever on

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February 20, when Charles "Doc" Reitell of New York City spoke of the "Inter-Play of Costs-Prices-Volume and Profit". About eighty-five all told were in attendance and the rapt attention which was paid to Mr. Reitell during his two hour talk was an eloquent testimony to the worth of his address. It is hoped at some future date to incorporate Mr. Reitell's talk in "Cost and Management".

On March 20th, members of the chapter are in for another treat when Mr. Claude Rainey of Buffalo will speak on "The Duties of a Controller". Mr. Rainey is a fine speaker, with a real reputation, and it is hoped that another large turnout will greet him on this occasion.

Kitchener Chapter.

Only a small attendance turned out for the Discussion Meeting on February 8, the inclement weather and bad roads no doubt contributing largely. However, those who did attend were well rewarded.

On March 14 is scheduled what should be the very best meeting of the season when Mr. D. J. Turnbull of the J. D. Woods Company, Industrial Engineers, of Toronto, will speak on "Work Simplification". Mr. Turnbull is a brilliant speaker with a wealth of information for his hearers and his talk will be illustrated with movies. It should be undoubtedly the best meeting of the year and warrants a real crowd.

London Chapter.

The February meeting of the London Chapter brought out the largest attendance in the history of the chapter, when over forty attended to hear R. F. Bruce-Taylor, F.C.A., of the Foreign Exchange Control Board, Commercial Section, Ottawa, speak on "Foreign Exchange in Wartime". Mr. Taylor gave his hearers a wealth of information on a subject which is evidently of supreme importance and at the conclusion answered many questions. His visit was one of the highlights of the season and was much appreciated.

On February 28 about twenty-four Students attended a Student Section meeting, when plans were drawn up for future meetings. It was tentatively decided to split future meetings into three phases: 1, Discussion of members' problems; 2, Analysis of examination questions, and 3, The building up of an industrial plant. This latter question will start with the laying out and building of the plant, installation of machinery and equipment and following with the plant operations and production problems, cost accounting methods, office and accounting methods and the tying in of factory records with the general books.

The next regular meeting of the chapter will be held on March 21st, when Mr. L. D. Stafford of the American Appraisal Company of Detroit will speak on "The Control of Plant Expenditures and Depreciation". Mr. Stafford addressed our Windsor Chapter in November and received a very warm reception. His talk was considered to be one of the best the members had yet heard and it is to be sincerely hoped that the members will turn out in large numbers for this meeting.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

Windsor Chapter.

For the February meeting there was a real good turnout to hear Mr. W. J. Blackburn, who is Supervisor of Insurance with Hiram Walker & Sons Ltd., Walkerville. His talk on "General Phases of Insurance" was very much enjoyed and he was the recipient of a hearty vote of thanks at the close.

For the March meeting, on March 28, Mr. A. D. Blackwood of The Briggs Manufacturing Company, Detroit, will be the guest speaker. This meeting will be a joint affair with the Detroit Chapter, N.A.C.A., and will undoubtedly bring along the largest attendance in the history of the chapter. The affair will be held at the Norton Palmer Hotel, Windsor, and as Mr. Blackwood is a fine speaker with a wealth of knowledge to hand out, it is expected that the Canadian attendance will be at its highest mark.

Recent Developments in Production Management

An Address Delivered Before Montreal Chapter

By

MR. T. M. MORAN,

Factory Manager,

Dominion Rubber Company Limited,

Montreal.

A. Introduction—Fundamental Principles of Management.

B. Organization—Concepts and Principles.

C. Co-ordination of Staff and Line Organization.

D. Elements of Administration.

E. Charts and Details.

Chart 1.—Manufacturing Functions.

Chart 2.—General Elements of a Manufacturing Organization.

1. Sales — Manufacturing — Export — Co-ordination.

2. Industrial Relations.

3. Plant Engineering.

4. Production Control.

5. Manufacturing Superintendent.

6. Cost Control.

7. Industrial Engineering.

8. Laboratory and Technical Superintendent.

Charts 3 and 4—Specific Examples—Co-ordinating Charts.

1. Stores Department.

2. Sales—Export and Manufacturing Co-ordination.

Chart 5.—Sales Forecasts Chart.

Chart 6.—Co-ordinating Chart War Supply Board—Department of National Defence.

F. Conclusion—Summation of Significant Trends in Production Management.

G. References.

COST AND MANAGEMENT

Manufacturing Management.

Before starting the general details of my paper on "Recent Developments in Production Management", I deem it advisable to dwell on the general fundamentals and principles of good management of an industrial enterprise.

The fundamental criterion for good management is that the predominant motive must not be quick profits, but best ultimate service of the public. This is a topic in itself which deserves much elaboration, but must be left to your own thoughts for interpretation and application.

A.—Fundamental Principles of Management.

The first of these is that management is an essential attribute of decent group life. Without it there is chaos, discord and ineffectiveness. Without it there is no security; and the complete freedom from controls does not give liberty but rather the worst of all subjugations, anarchy without protection. But with management comes orderly procedure and directed co-operative effort so that the group becomes greater than the sum of the individuals which compose it. Undoubtedly the increasing complexities of modern life, due largely to technological progress, require a continually increasing degree of quality of group management.

The second principle is, at first glance, the antithesis of the first. It is that wise management involves the minimum of control and supervision consistent with reasonably smooth, co-ordinated and properly oriented operation. It is an evolutionary principle that, as individuals or groups grow in their ability to accept responsibility, the controls imposed on them are relaxed in order that they may accept and discharge responsibility. In this manner they develop their own powers and increase the contributions which they can make to their social group. This is a basic principle in training young animals and children, in training young executives and in developing divisions of an organization.

The greatest of all management problems to-day is to determine the most advantageous balance between these two principles. How much management should be exercised and to what extent should it be centralized? The question arises in business and in government.

In industrial organization, in America at least, the pendulum is swinging definitely in the direction of less centralization of management, as well as of capital and of operating plant. The reason is that experience has shown too great centralization of control to be inefficient and also hazardous. The great desire of business now is to develop personnel who can wisely discharge responsibility and take initiative, rather than to depend upon an army of obedient, hardworking, but unimaginative employees taking orders from the boss.

So I believe that experience, logic and human psychology all support the view that that type of management is most likely to be successful in the long run which directs and inspires but does not too rigidly control, which offers large opportunity for initiative and criticism, which has faith in the mass judgment of an intelligent group and in the genius which may appear in unexpected quarters. It is qualities like these which are basic to the type of management which has found favor and success in this country, in the home, in business and in the organization of our government itself.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

It is a wise management that studies these principles carefully and finds the proper balance for his individual enterprise.

B.—Organization Concepts and Principles.

Organization has three main aspects. The first is the static or structural aspect—designing your automobile. The other two are dynamic or operating aspects—when you have completed your design you have to select and train individuals to discharge the various groups of responsibilities involved in that design; you have to build your automobile. When that is done you have to hold those individuals in constant co-ordination directed towards the objective for which the undertaking was set up; you have to drive your automobile towards its destination.

There are certain concepts which are constantly recurring in discussion of organization and which may be defined as follows:

Duties are the activities which the individual is required to perform by virtue of his membership in the organization.

Responsibility is accountability for the performance of duties.

Power is the ability to get things done; that is to say, it is a function of knowledge, skill and personal qualities.

Authority is the right to require action of others, it may be:

(a) formal, i.e. conferred by the organization.

(b) technical, i.e. implicit in special knowledge or skill.

(c) personal, i.e. conferred by seniority or popularity.

In addition there are certain general principles which are applicable to all forms of organization. I shall state them categorically:

1. All organization and each part of any undertaking should be the expression of a purpose, either explicit or implied.—“The Principle of the Objective”. (Urwick).
2. Formal authority and responsibility must be coterminous and co-equal.—“The Principle of Correspondence”. (Taylor).
3. The responsibility of higher authority for the acts of its subordinates is obsolete.—“The Principle of Responsibility”. (Urwick).
4. There must be a clear line of formal authority running from the top to the bottom of any organization.—“The Scaler Principle”. (Mooney & Reilly).
5. No superior can supervise directly the work of more than five or, at the most, six subordinates whose work interlocks.—“The Principle of the Span of Control”. (Craicunas).
6. The work of every person in the organization should be confined as far as possible to the performance of a single leading function.—“The Principle of Specialization”.
7. The final object of all organization is smooth and effective co-ordination.—“The Principle of Co-ordination”. (Mooney & Reilly).
8. Every position in every organization should be clearly prescribed in writing.

C.—Co-ordination of Staff and Line Organization.

1. Staff Organization:

(a) Responsibilities:

1. To establish standards and regulations.
2. Nominate detail required from line organization for compilation of controls.

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3. Prepare controls.
4. Analyse controls.
5. Act as consultants to line organizations.

(b) Authority:

1. In capacity as consultants, they have the right to demand that recommendations to the line organization are not rejected.

2. Line Organization.

(a) Responsibilities:

1. To submit accurate data and detail as nominated by staff organization.
2. Utility of controls. In other words, the line organization is fully responsible for the effective use of controls, and the results therefrom. If controls are not effective, they must make constructive recommendations to staff organization for improvement.
3. To make application for all new standards and regulations and keep the staff organization advised of changes in operating conditions.

(b) Authority:

1. Need not accept, but cannot reject standards, regulations or recommendations from staff organization.

3. Technique of Operation:

1. Co-operative relationship between two groups are necessary for proper operation of these aforementioned principles.
2. Provisional acceptance by line organization is the proper trend for satisfactory progress.
3. "Selling" of consultant service by staff organization will lead to progressive development and improvement in factory operation.
4. Differences between staff and line organizations to be referred to their immediate superiors for decision.

D.—Elements of Administration.

- A To plan—means to study the future.
- B To organize—means to build the human and material organization.
- C To command (direct)—means to make the staff do their work.
- D To co-ordinate—means to unite and co-relate all activities.
- E To control—means to see that everything is done in accordance with regulations.

Duties

A—

1. See that the plan of operations is carefully prepared and strictly carried out.

B—

1. See that the human and material organizations are suitable for the objects, resources and needs of the undertaking.
2. Establish a management that is competent and has singleness of purpose.
3. Make careful selection of staff, each department a competent and energetic head, each employee where he can be of most service.
4. Pay special attention to unit of command—C.

C—

1. Make decisions which are clear, distinct and precise.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

2. Define duties clearly.
3. Encourage the desire to exercise for initiative and responsibility.
4. Reward men fairly and judiciously for their services.
5. Impose penalties for mistakes and blunders.
6. See that discipline is maintained.

D—

1. Co-ordinate operations and efforts.
2. See that individual interests do not interfere with the general interest.
3. Ensure material and human order—B, D.

E—

1. Subject everything to control.
2. Avoid red tape.

E. Charts and Detail.

The following charts are intended to show the trends in the control of a manufacturing unit.

Chart 1. Manufacturing Functions.

Before a production organization chart is prepared it is best to keep ever before us the manufacturing functions to be performed. Chart 1 graphically shows these functions.

Chart 2. Details a Common Manufacturing Organization.

This chart shows the elements of each departmental group reporting to a Manufacturing Manager. The duties related to these elements are detailed further in this treatise under respective headings, i.e. Sales—Export Manufacturing Contact—Industrial Relations, etc.,—Elements and Duties, key groups (1) to (8) inclusive.

Charts 3 and 4.

These are examples of co-ordinating charts as used by various departmental heads. These co-ordinating charts should be prepared for the personnel in each "Key Group", as they definitely establish the responsibilities and authority of each department.

Chart 3. Stores Department.

Chart 4. Sales—Export and Manufacturing Co-ordination.

Chart 5. Sales Forecasts Charts.

This is an example to show the method used to stabilize seasonal employment through the method of accumulating stocks during the slack selling season in order to meet the sales peak which follows. Such a method involves three major steps:

1. Sales forecast with its measure of seasonal tendencies.
2. Determination of production levels, and
3. The control of stock levels.

The key to successful production control is accurate sales forecasts. This requires the use of refined statistical technique and co-operation with the sales and advertising divisions.

Chart 6. Co-ordinating Chart War Supply Board Orders.

This chart shows the routine of enquiries, orders, invoices, etc., in handling War Supply and Department of National Defence requirements.

(Unfortunately it was found impossible to reproduce

Charts No. 2, 3, 4 and 6.—Editor).

COST AND MANAGEMENT

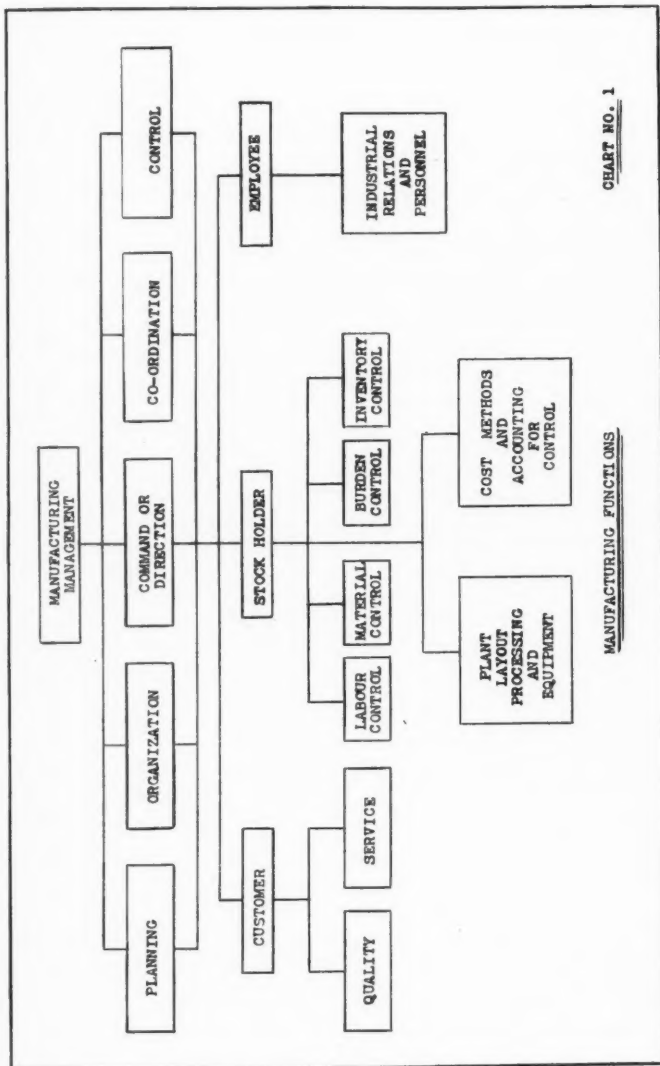


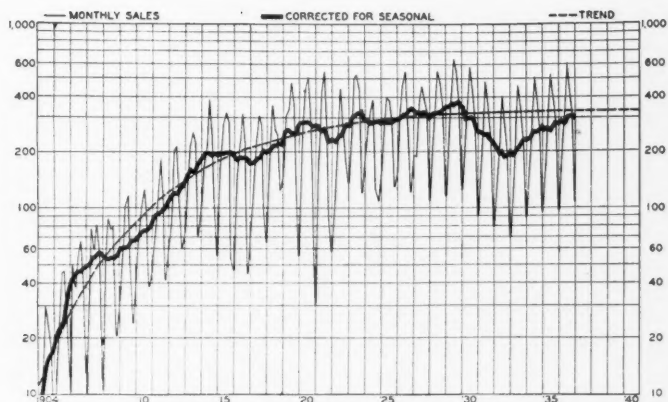
CHART NO. 1

MANUFACTURING FUNCTIONS

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

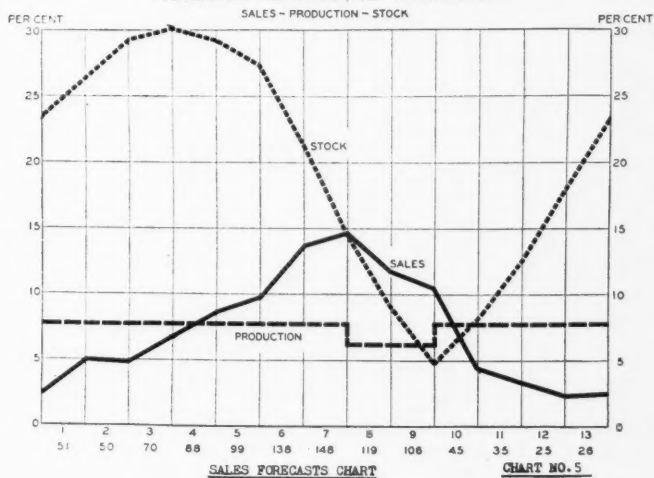
PRODUCT B - SALES

1



PRODUCT B NORMAL SEASONAL VARIATION

2



COST AND MANAGEMENT

E. Details—Elements and Duties, Manufacturing Organization.

1. Sales—Manufacturing—Export—Co-ordination

A—Sales—Export—Contact.

B—Order Specification Editing.

C—New Products—Product Changes.

D—Product Complaints.

E—Meetings.

A—Sales—Export—Contact.

1. Correspondence.
2. Sales circular clearance.
3. Technical Sales Service.
4. Sales conferences.
5. Sales Manager contact.

B—Order Specification Editing.

1. Chairman.
2. Sales Manager contact. Re special orders.

C—New Product—Product Changes.

1. Sales and Manufacturing acceptance.
2. Check effect of New Product or Product Change on raw materials, process inventory, finished goods inventory.
3. Style, packaging pattern, special information.

D—Product Complaints.

1. Correspondence with sales.
2. Follow-up on special changes to eliminate complaints.
3. Complaint records.

E—Meetings.

1. Operating.
2. Product development.
3. Product complaints.
4. Sales meetings.

2. Industrial Relations.

A—Personnel requirements.

B—Employment.

C—Social Security.

D—Health.

E—Safety.

F—Welfare.

G—Vocational Training.

H—Controls.

I—Miscellaneous.

J—Meetings.

A—Personnel Requirements.

1. Workmen — Incentive Workers — Machine Tenders.
(Wage Earners) (Production) Head Operators.
Operators.
Specialty Craftsmen — Head Operators.
(Production) Operators.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

Service Workers — Shippers

Truckers

Warehousemen

Store-room men

Sweepers, etc.

Engineering Dept. Personnel.

2. Salary Employees — Departmental Heads

Clerks, stenographers, comptometers, etc.,

typists, accountants, cost accountants,

estimators, schedulers, etc.

B—Employment.

1. Analysis of labour markets—wage earners—salary employees.
2. Applications.
3. Interviews.
4. Hiring.
5. Grievances.
6. Labour turnover.
7. Promotional prospects.
8. Problem cases.
9. Employee follow-up.
10. Termination.

C—Social Security.

1. Factory council.
2. Employee relations.
3. Collective co-operation.
4. Unemployment.
5. Hours per week.
6. Wages.
7. Salaries.
8. Overtime.

D—Health.

1. Pre-employment examination.
2. Health guidance.
3. Hospital facilities.
4. Yearly check-up examination.
5. Special cases health follow-up.

E—Safety.

1. Inspection—Local, provincial, municipal.
2. Organization—Committee meetings.
3. Investigation—Management—Workmen.
4. Propaganda—Posters, literature, contests.

F—Welfare.

1. Educational assistance and guidance.
2. Vocational guidance.
3. Retirement and savings plan.
4. Mutual benefit association.
5. Athletic and recreational association.

COST AND MANAGEMENT

6. Lunch room.
7. Employees' welfare plan.
8. Employees' loans (story).
9. Military training.
10. First aid courses.
11. Employee sales.

G—Vocational Training.

1. Workman training.
2. Craftsman training.
4. Staff training.

H—Controls.

1. Hours per week control.
2. Average hourly rate.
3. Average weekly pay envelope.
4. Average quarterly wages.
5. Average yearly wages.
6. Labour turnover.
7. Industrial relations—Department, budget and standards.

I—Miscellaneous.

1. Suggestion system and awards.
2. Visits from schools, colleges, etc.
3. Social agencies contact.
4. Personnel association contacts.
5. Follow-up on all federal, provincial, municipal legislation and by-laws..
6. Information.
7. Keeping in touch with trends and advising management.

J—Meetings.

1. Factory council.
2. Industrial relations.
3. Mutual benefit association.
4. Operating.

3. Plant Engineering.

- A—Repairs and Maintenance.
- B—Insurance Control.
- C—Appropriations.
- D—Equipment.
- E—Buildings.
- F—Mechanic and Process Development.
- G—Power Services.
- H—Engineering Service Product Requirements.
- J—Controls.
- K—Mechanic Shop and Mechanic Services.
- L—Draughting Room.
- M—Meetings.

A—Repairs and Maintenance.

1. Repairs and maintenance of land, buildings and equipment.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

2. Study of economics of R. and M. work.
3. Ratio of material to labour in R. and M.

B—Insurance Control.

1. Fire protection—Sprinklers, hydrants, pumps, etc. (at Shawinigan).
2. Elevators.
3. Pressure vessels.
4. Boiler house.

C—Appropriations.

1. Issuance of appropriations.
2. Appropriation estimates.
3. Follow-up on installation after appropriation approval.
4. Follow-up on cost of appropriation work.

D—Equipment.

1. Machine design.
2. Equipment purchases.
3. Equipment installation.

E—Buildings.

1. Design.
2. Construction.
3. Repairs.

F—Machine and Process Development.

1. Machine development.
2. Engineering layouts.
3. Layout estimates.
4. Development mechanism.

G—Power Services.

1. Engineering design.
2. Upkeep.

H—Engineering Service Product Requirements.

1. Design moulds, dies, tools, etc.
2. Purchase of moulds, dies, tools, etc.
3. Repairs of moulds, dies, tools, etc.
4. Design, purchase of all steel parts of product.

J—Controls.

1. Budget and standards, R. and M. expenditures.
2. Budget and standards, capital equipment replacement expenditure.
3. Budget and standards, Power, steam, air, water.
4. Budget and standards, engineering department, salaries, wages, supplies.
5. Appropriation expenditures.
6. Efficiency of power services.
7. Economy of power usages.

K—Machine Shop and Mechanic Services.

1. Operation of machinists, welders, tool makers, millwrights, electricians, painters, carpenters, boiler men, etc.

L—Draughting Room.

1. All engineering design, layouts, etc.

COST AND MANAGEMENT

M—Meetings.

1. Process development.
2. R. and M. control.
3. Burden control meeting.
4. Operating committee.
5. Industrial relations.
6. Sales and manufacturing annual meeting

4. Production Control.

- A—Stores.
- B—Purchasing.
- C—Merchandising.
- D—Production.
- E—Warehousing.
- F—Shipping.
- G—Transportation.
- H—Controls.
- I—Meetings.

A—Stores.

1. Specification raw materials and supplies.
2. Ordering of raw materials and supplies.
3. Follow-up on delivery of orders.
4. Receiving of raw materials and supplies.
5. Storing of raw materials and supplies.
6. Stores accounting.
7. Stores ledgers.
8. Carton manufacturing.
9. Stock keepers.
10. Stores inventories.

B—Purchasing.

1. Placing of requisitions on G.P.D.

C—Merchandising.

1. Analysis of sales forecasts with its measure of seasonal tendencies.
2. Determination of production levels.
3. Control of stock levels.
4. Establishing minimum and maximum raw materials.
5. Establishing minimum and maximum finished goods.
6. Establishing minimum factory runs.
7. Liason work manufacturing and distribution.
8. Merchandise case studies.
9. Shipping specifications.

D—Production.

1. Order editing—Specification—Delivery.
2. Order registers.
3. Order promises and revisions.
4. Production rates.
5. Order tracing.
6. Overtime clearance to manufacturing department.
7. Advising stores of product changes.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

E—Warehousing.

1. Check of finished goods from manufacturing to stock.
2. Care of stock.
3. Stock-keepers—Finished goods.
4. Inventory finished goods.

F—Shipping.

1. Requisitioning goods for stores.
2. Packing and crating goods.
3. Delivery to transportation department.

G—Transportation.

1. Bills of lading.
2. Date to invoice department.
3. Shipping instructions freight, express, truck.
4. Truckers.

H—Controls.

1. Minimum and maximum raw materials and supplies.
2. Turnover raw materials and supplies.
3. Promises and revisions.
4. Work on hand reports.
5. Process inventory control and turnover.
6. Schedules control.
7. Maximum and minimum stocks finished goods.
8. Turnover finished goods.
9. Stock reports.
10. Shipping records.
11. Budgets and standards control—Salaries, wages and supplies.

I—Meetings.

1. Production control.
2. Foreman's meetings.
3. Industrial relations.
4. Operating committee.
5. Sales and merchandising.

5. Manufacturing Superintendent.

A—Manufacturing Production.

B—Order Service.

C—Product Quality.

D—Technical Sales Service.

E—Wage Earners.

F—Supervisory Staff.

G—Control Record Data.

H—Economy of Operation.

I—Meetings.

A—Manufacturing Production.

1. Maintenance of production schedule.
2. Expedition of manufacturing procedures.

B—Order Service.

1. Order specification editing.
2. Order delivery editing.

COST AND MANAGEMENT

3. Requisition of raw materials from stores.
4. Tracing of orders against delivery promises.
5. Submit order revisions to order control department.

C—Product Quality.

1. Departmental controls on product quality.
2. Specification changes—product and process—to laboratory.

E—Wage Earners.

1. Industrial relations problems.
2. Wage control.

F—Supervisory Staff.

1. Operations supervision.
2. Salary and wage control.
3. Industrial relations problems.

G—Control Record Data.

1. Labour.
2. Material.
3. Burden.
4. Inventory.
5. Product control.

H—Economy of Operation.

1. Labour efficiency.
2. Material waste.
3. Burden productive departments.
4. Process inventory.

I—Meetings.

1. Foreman's.
2. Industrial relations.
3. Factory council.
4. Product development and complaints.
5. Product and process problems.
6. Material usage.
7. Standards—Labour, material, burden.
8. Operating.

6. Cost Control.

A—Budgetary Control.

B—Burden Control.

C—Standard Costs.

D—Accounting.

E—Payroll.

F—Estimating.

G—Production Ledgers.

H—Invoicing.

I—Office Services.

J—Meetings.

A—Budgetary Control.

1. Analysis of monthly and yearly sales forecasts.
2. Preparation of monthly and yearly manufacturing budgets.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

3. Monthly and yearly budget reports—estimate against actual with explanatory remarks.
4. Budget performance direction.

B—Burden Control.

1. Plant capacity.
2. Burden standards—Salaries, wages (indirect labor).
Variable, Non-Variable, supplies, other.
3. Burden budgets.
4. Burden reports.
5. Burden performance direction:
 - (a) Productive departments.
 - (b) Service departments.

C—Standard Costs.

1. Labour standards, standard time units, standard hourly rates, standard efficiencies, standard occupational.
2. Material standards, material usage, material price.
3. Burden standards, variable, non-variable.
4. Scrap standards.
5. Packaging standards.
6. Price production.
7. Price inventories.

D—Accounting.

1. Stores accounting.
2. Finished goods accounting.
3. Plant accounting.
4. General accounting.
5. Cost accounting.

E—Payroll.

1. Time card checking.
2. Labour distribution.
3. Payroll ledger.
4. Labour control sheet compilation.

F—Estimating.

1. Current products.
2. New products.
3. Non-standard cost items.

G—Production Ledgers.

1. Check load sheets.
2. Port ledger.

H—Invoicing.

1. Check production ledger and order prior to invoicing.
2. Price invoice from price sheets or red costs.
3. Type invoices.
4. Despatch invoices.

I—Office Services.

1. Customs—Drawback—Empire Content.
2. Cashier.

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3. Typing.
4. Stenography.
5. Comptometer.
6. Accounting machines, etc

J—Meetings.

1. Budgetary meeting.
2. Standards meeting—Labour, material, burden.
3. Cost control meeting.
4. Operating committee.

7. Industrial Engineering

- A—Labour Control.
- B—Plant Layouts and Methods.
- C—Cost Comparison Surveys.
- D—Meetings.

A—Labour Control.

1. Wage policy.
2. Wage occupationals.
3. Work standardization and evaluation.
4. Time and motion study—Work simplification (H. Mogensen).
5. Labour standards, direct and indirect labour.
6. Labour specifications.
7. Standard cost labour efficiencies.
8. Methods for recording labour.
9. Task and bonus control.
10. Apprentice training.
11. Labour control sheet: (a) analysis, (b) performance, (c) direction.
12. Inventory labour variations.
13. Special labour estimates.
14. Direction of labour economies and efficiency.

B—Plant Layouts and Methods.

1. Product layouts.
2. Process layouts.
3. Economic methods surveys.
4. Appropriation recommendations.
5. Appropriation.
6. Establish new standards on new methods.
7. Follow-up an appropriation savings.
8. Methods development progress reports.

C—Cost Comparison Surveys.

1. Labour comparisons.
2. Material comparisons.
3. Burden comparisons.
4. Inventory turnover comparisons.
5. Equipment.

D—Meetings.

1. Standards—Labour, material, burden.
2. Methods development.
3. Operating.

RECENT DEVELOPMENTS IN PRODUCTION MANAGEMENT

8. Laboratory and Technical Superintendent.

- A—Fundamental Research.
- B—Specific and Applied Research.
- C—Commercial Development.
- D—Pilot Plants.
- E—Raw Material Control.
- F—Material Usage Control.
- G—Product and Process Control.
- H—Inspection Control.
- I—Factory Product and Process Problems.
- J—Technical Sales Service.
- K—Meetings.

A—Fundamental Research.

1. Studies and investigations at the frontiers of the basic sciences of physics, chemistry, etc.
2. To determine the properties, characteristics and behaviour of matter—quite without regard to any immediate or specific commercial uses or application.

B—Specific or Applied Research.

1. Obtain definite information to solve a particular problem.
2. Improvement of old product.
3. Development of new product.

C—Commercial Development.

1. Extensions to existing lines of products and improvements in their characteristics.
2. Development directed towards improvements and cost reductions in existing products, to enhance their competitive standing or value.
3. Analysis of competitive products.

D—Pilot Plants.

1. Development of new processes on a commercial basis.

E—Raw Material Control.

1. Raw material specifications.
2. Raw material control testing.
3. Raw material storage.
4. Co-operation with G.P.D. and suppliers to improve raw material.

F—Material Usage Control.

1. Product specification analysis.
2. Material waste standards.
3. Raw gum scrap.
4. Cured waste.
5. Spoiled in process.
6. Material usage—(a) calendar variations, (b) spreader variations, (c) tuber variations, (d) shipping weights.
7. spot checks, material usage.
8. Material waste reports.
9. Material waste meetings.

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G—Product and Process Control.

1. Product specifications—(a) materials, (b) material usage.
2. Technical process specifications.
3. Product and process control during manufacturing.
4. Disposal of compounds and stocks.
5. Finished goods tests.
6. Finished goods appearance.

H—Inspection Control.

1. Inspection specifications.
2. Raw material inspection.
3. Intermediate product inspection.
4. Finished goods inspection.
5. Outside inspection.
6. Stock inspection—raw materials, finished goods.

I—Factory Product and Process Problems.

1. Service to manufacturing departments on products and processes that give trouble.

K—Meetings.

1. Product development and product complaints.
2. Factory product and process problems.
3. Material usage.
4. Special products.
5. Sales and manufacturing annual meeting.
6. Research.
7. Order specification editing.
8. Operating.

F. Significant Trends in Manufacturing Management

A study of various papers, articles and literature on manufacturing organization and control presents six tendencies which appear to be manifest.

First, we find a complete acceptance of the research function as an important, if not inseparable, aid to manufacturing management. The only concern expressed is that the benefits of research may be arrived at by less wasteful methods; that duplication of identical research in separate establishments be avoided; that co-operation in research, both horizontally through collaboration with other companies by means of trade associations, and vertically through collaboration through vendors or customers, be encouraged; that this last stronghold of industrial secrecy yield to the principle that progress for an industry as a whole means progress for the individual establishment. The ever-changing situation, in which every production unit finds itself, constantly offers opportunity for constructive change; and therefore studied improvement, like production itself, is an ever present, active responsibility in all parts of the organization.

Second, every effort should be put forth to protect production from the ill effects of economic fluctuations and irregularities. The important social benefits resulting from balanced production is universally recognized. At the same time we must be aware that seasonal and cyclical fluctuations are inevitable phenomena affecting business. The general factors of sales fore-

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casts, production levels and stock levels are becoming absolutely necessary in the proper operation of an enterprise. A more recent movement is the establishment of greater operator versatility. The benefits from this resource show themselves in improved employee morale, in the lessening of minimum inventories, in the widening of manufacturing lines, and in the growth of customer good will resulting from better quality and service.

A third aid to regularization is increased preparedness for fluctuations through the establishment of flexible budgets incorporating planned schedules of operations covering the gamut of possibilities found in changing economic conditions. Finally, we can face the issue that seasonal fluctuation, being ever with us, is a condition that demands concerted study until, through the use of complementary products, storage or other means, its effect upon steady employment may be neutralized.

Third, in the field of internal control a most significant trend has appeared. In increasing degree, the directive function of manufacturing control devices and costing methods reflects in a shift of emphasis from that of control through surveillance to control through service. The new view is that the typical employee may be better stimulated through technical assistance which provides him with the facilities and environment necessary to high quality and output than through the fear of consequences resulting from his failure to attain a given stint. The use of mechanical devices for process timing and the recording of output; the strong trend towards standard costs which enforce careful planning and quickly point the areas where executive assistance is valuable; the growth of serialized production; the increased attention given plant and equipment maintenance; the spread of work simplification, and the growing emphasis upon foreman training—all conjoin in the movement toward control through collaboration.

Fourth. Over the past twenty-five years there has been observable in this country a trend, first away from and then back to simplicity in control. In the uncontrolled industry a great diversity of practices is usually found; for there has been no compelling need of standardization. Hence, the student of control finds at the start a bewildering and ever-changing variety of practices which make standardization and prediction seem costly and remote, if not impossible.

During the stage before control has been adopted by management and while it is still, so to speak, only tolerated, there tends to be a great emphasis on planning techniques, charts, graphs and other procedural devices. Such devices are, indeed, essential if one is to obtain any sure grasp of the complex situation presented. But if this stage is successfully survived, real benefits come presently to be felt. Few chief executives can long resist the lure of a dependable budget, which will take most of the guesswork out of financial planning, for example. Meanwhile, the idea of simplification and standardization has caused a scrutiny not only of work operations but also of clerical procedures. Meanwhile also, with an increasing appetite for the benefits resulting from control, the devices and organization for securing it tend to become more elaborate. A point is finally reached at which it may be worth while to simplify, standardize and unify shop operations to some extent in order to reduce the cost of the control operations involved. An

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important factor in the cost comparison which should determine the balance of these elements is of course the volume of operations.

In general, the tendency toward simplification has resulted in two marked developments in many American industries. One of these is the tendency toward straight line manufacture. Even if one makes only a few hundred of a certain article in a year, it may be cheaper to set up a little production center for the article and run the center as a unit, than to try to conduct the lot personally through the maze of scheduling and accounting required by a functionalized plan of production.

A second tendency is that toward decentralization of the details of control. In production control, as well as in the administration of personnel and other fields, there has been of recent years a marked trend toward management by exception. I need not emphasize the necessary relationship between control by exception and the possession of sufficiently exact measures and standards of performance. Under this plan, a product or a required performance, such as the operation of a department, is carefully analyzed on the basis of known standards of time or cost; and a schedule or budget is established. While help may be given by the central management, if needed, the attainment of these standards is in general left to the foreman or department head. The reduction in cost of communication and control, the gain in flexibility and the release on individual initiative, make decentralization preferable to centralized control wherever the conditions requisite to its success exist.

It must be borne in mind that any control is as effective as the strength of the operating organization who submit the control data.

Fifth. A most thought provoking trend is that toward the establishment of smaller manufacturing units either by means of the decentralization or the departmentalization of larger processing units. A characteristic of these new divisions is that each usually incorporates the production of a single product or group of allied products. A number of reasons may be assigned to this trend, and a variety of advantages are held to result. It is clear, however, that the basis for this opportunity rests in the presence of budgetary control which offers a means of verifying executive proficiency in these smaller areas and thus permits decentralized organization.

Notable among the benefits to be gained are the reduction in indirect costs of transport, storage and clerical labor required by previous inter-departmental relationships; increased morale resulting from a clearer understanding of the relation of each operation to the finished product; and improved environmental conditions made possible through decentralization into rural or suburban areas. This bringing together of the variety of operations necessary to complete a finished product enforces a broader outlook on the part of the executives in charge and effects an increase in capital investment, which is more than compensated by the advantages referred to previously. Supervision of operators tends to shift from the gang-boss to the foreman of more diversified abilities who has the assistance of one or more staff men. Thus, through the agency of budgetary control, many of the advantages inherent in the smaller establishment are now being capitalized by large-scale organizations.

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Sixth. But of greatest importance is evidence of a changing managerial attitude toward those who are concerned directly or indirectly with production. A distinct change is evident in relationships with suppliers. No longer are they regarded as external to the company interest and only to be bargained with. The trend is clearly toward viewing them as resources to be conserved and fostered. Devices for the early detection of deterioration in quality or service are used not as signals for future rejection and discontinuance, but as reasons for immediate conference and mutual review in order that quick preventive measures may be taken. More and more the purchasing function is being called upon further to humanize its relationships with suppliers and thus to reflect broad company policy as it relates to the establishment of mutual confidence and good will.

Likewise, with respect to the consumer, we note greater attentiveness at the outset of production to his quality needs, and at the close, greater care in testing the nature and quality of the service provided by the product. Clearly the influence of the buyer is most keenly felt within factory walls than heretofore.

Yet the most significant change has occurred in the relationship of management to the productive or operating employee. First in importance is the growing acceptance of the employee as a co-ordinate human being and desirably one who views his responsibilities from the executive angle. The new attitude toward employee outlook is only logical; for, as the machine first supplanted the strength of the employee and later was substituted for his manual skill, so his position in the eyes of management has changed. First viewed as a commodity and next as an artisan, we find now that, as his activities turn to the control of equipment, he is increasingly being viewed as a manager in his own right. During our studies of current management thought we find more than once the desire that the operator become more money-conscious, budget-conscious, quality-conscious, consumer-conscious—all managerial attitudes. Through the use of suggestion plans, and training in the principles of work simplification, his imaginative powers are being enlisted; through the establishment of comprehensible methods of basing wages, his sense of justice is being satisfied; through accident prevention activities of an educational as well as technical nature, his participation in the elimination of industrial risks is being assured. Indeed, in some companies, his services are being sought in the selling of company products in his community, in order that his place in the completed round of industrial interests be established.

Last and far from least is the widespread trend to make productive facilities conform to the man rather than to enforce his conformance to facilities; to fashion the industrial fabric to fit the human structure and not vice versa. Work simplification again appears in the role of humanist; and literally thousands of gadgets are now being affixed to machine and work-bench, releasing hands for symmetric movements, putting feet to work and capitalizing the easy rotation of the body by the radial arrangement of fabricating units about the operator who has them in charge.—Motion Study vs. Time Study.

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These trends have, I believe, a profound significance. Under the combined influence of these six forces—the acceptance of research as a continuous and omnipresent activity, the enlistment of all resources to assure regularized operation, the attainment of control by means of collaboration rather than dictation, the trend of control simplification and line staff strength, and the viewing of suppliers, of customers, and of employees as active participators in management—under these influences Modern Manufacturing Management has a heavy chore to satisfy "The Customer", "The Public", "The Employee", and last but not least, "The Stock Holder".

G. References

Principles Management:

Karl T. Compton, President, Massachusetts Institute of Technology.

Principles Organization:

L. Urwick, O.B.E., M.C., M.A., F.I.I.A., Chairman of Urwick, Orr & Partners, Ltd., Consulting Engineers, London, England.

Trends:

Edwin H. Schell, Professor in charge of Business and Engineering Administration, Massachusetts Institute of Technology.

William F. Hosford, Vice-President, Western Electric Co. Inc., New York City.

Allen H. Mogensen, Industrial Consultant, U.S.A.



EXAMINATIONS

The Society's Examinations Will be Conducted This Year
as Follows:

Bookkeeping—

Monday, April 29th, 6.30 to 10.00 p.m.

Accounting—

Tuesday, April 30th, 6.30 to 10.00 p.m.

Cost Accounting, 1st Year—

Wednesday, April 24th, 6.30 to 10.00 p.m.

Cost Accounting, Advanced—

Friday, April 26th, 6.30 to 10.00 p.m.

Industrial Organization and Management—

Thursday, April 25th, 6.30 to 10 p.m.

Applications for examination may be had from the office of the
Secretary-Manager at 301 MacKay Bldg., 66 King St. East,
Hamilton, Ont.

